Bacteria → Gm- → Chlamydiaceae

* Small | Obligate intracellular | Cannot synthesize ATP | share group-specific Ags
* Cell wall w/o PG but has PBP + high lipid content
* 2 genre
  + Chlamydia: Chlamydia trachomatis – human-specific pathogen
  + Chlamydophila: C. pneumonia + C. psittaci + one more cause human disease

**Chlamydia trachomatis**

* Major cause of urogenital disease
* Epidemiology
  + Most commonly reported infectious US disease
  + Risk factors: Young age | Women (more likely to be tested) | Blacks
  + Transmitted via vaginal/anal sex
* Pathogenesis

1. Infects single-cell columnar epithelial layers
2. Multiplies + spreads to surrounding tissue
3. Migration to reproductive organs → PID
   * Elementary Body – “Spore-Like”
     + Resistant to environmental challenges
     + Has glycosaminoglycan on surface for cell attachment
     + Once inside cell + escapes phagosome → becomes an RB
   * Reticulate Body – “Initial Body”
     + Not stable outside cell | Metabolically active | Divides by binary fission (every 24-48 hrs)
     + Can either go back to EB + be released | Go latent as RB w/in cell

* Clinical Implications
  + Quite often asymptomatic w/ only urination burning or unusual discharge
    - >75% of infected women | 25-50% of infected men
  + PID – Pelvic Inflammatory Disease
    - Scarring of fallopian tubes | sterility | infertility | ectopic pregnancy | chronic pelvic pain
    - 30-40% are polymicrobial
    - T: 2 antibiotics – want to treat C. trachomatis + N. gonorrhoeae + other Gm- bacteria
  + Reiter’s Syndrome
    - Peripheral arthritis > 1 month
    - 1° - Painful Urination or ↑frequency (due to Chlamydia)
    - 2° - Inflamed eyes (conjunctivitis) + Inflamed Jts
    - Associated w/ certain MHC haplotypes + may be autoimmune response
  + Lymphogranuloma venereum (LGV)
    - Enters skin breaks or crosses epithelial cells of mucous membranes
    - 1° - formation of painless herpetiform ulceration
    - 2° - Travel to regional lymph nodes + multiply in phagocytes → painful inguinal lymphadenitis
    - 3° - Can occur yrs after initial infection → elephantiasis of genitalia
  + Trachoma – infectious disease of the eye
    - Epi: highly infectious | common in clustered situations | Africa + India | Women – 3x more likely
    - Patho: Repeated inf. → eyelashes turning inward → scratch cornea → slow/painful blindness
    - T: WHO leading SAFE strategy
      * S – surgery of advanced disease stages
      * A – Antibiotics
      * F – Face Washing
      * E – Environmental change to ↑ access to clean H2O + improve santitation
* Pathophysiology
  + Infectious agent persists regardless of high Ab titers b/c Abs have little protective effect
  + Scarring may be due to delayed type hypersensitivity, although also present in asymptomatic pts
  + Immune response is the most Important component of C. trachomatis pathogenesis
* D: Screen if
  + <25 yrs | Inconsisitent barrier protection | New sex partner | >1 sex partner | Cervical atopy | hx STD
  + Cultures only in human epithelial cell lines
  + 3 Clinical approaches – IFA | ELISA | Nucleic Acid based tests
    - MUST take an appropriate sample (need to scrape thoroughly)
* T: DOC – Tetracycline derivatives
  + Abs only good against RBs → MUST take entire antibiotic regimen

**C. psittaci → Psittacosis**

* Transmission – inhaling bird feces, urine, or droplets
* Symptoms
  + 1° - Resp tract inf in 1-2 weeks (mild | asymptomatic | non-productive cough)
  + 2° - Can spread to liver + spleen
* T: Doxycycline | Azithromycin

**C. pneumonia → TWAR**

* D: unique pear-shaped EBr w/ large periplasmic space
* Transmission – Aerosol | Human-only
* Sym: Acute resp disease (some walking pneumonia, but mostly asymptomatic)
* Link b/w C. pneumonia Ags/DNA in atherosclerotic plaques + Alzheimer Plaques
  + Limited studies show antibiotic effectiveness vs atherosclerosis